

SN. 10/617,487

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IN THE DRAWINGS

Applicants submit amended replacement Fig. 2, deleting reference 26 not mentioned in the specification.

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REMARKS

Claims 1 and 3-12 are now pending in this application for which applicants seek reconsideration.

Amendment

Fig. 2 has been amended to remove reference 26, which is not mentioned in the specification. Paragraph 18 has been amended to include the inadvertently omitted value designation "cm⁻²".

Claim 2 has been canceled, and Claims 1 and 3-9 have been amended to improve their form and remove all informalities contained therein. Specifically, claims 8 and 9 have been amended to include the missing value designation "cm⁻²". Claim 1 also has been amended to incorporate claim 2. New claims 10-12 are directed to the relative doping concentration of the RESURF region.

No new matter has been introduced.

Specification Objection and § 112 Rejection

The examiner objected to the specification because the examiner believes that there is no antecedent basis for claims 8 and 9. These claims were also rejected under 35 U.S.C. § 112, second paragraph, for the same reason. Applicants submit that inserting the missing value designation "cm⁻²" overcomes the objection/rejection.

Art Rejection

Claims 1-7 were rejected under 35 U.S.C. § 103(a) as unpatentable over applicants' admitted prior art (hereafter AAPA) in view of Kitagawa (USP 6,777,746). Claims 8 and 9 were rejected under § 103(a) as unpatentable over AAPA in view of Kitagawa and Kawaguchi (USP 6,297,534). Finally, claim 10 was rejected under § 103(a) as unpatentable over AAPA in view of Kitagawa and Disney (USP 6,815,293). Applicants traverse this rejection at least to the extent that the applied references would not have taught claim 2, which is now incorporated in claim 1.

Claim 1 now calls for a drift region in the epitaxial layer and comprised of a super-junction region and a RESURF region, located between the source region and the drain region. The RESURF region is positioned between the super-junction region and the drain region.

AAPA and Kitagawa both indeed disclose a super-junction region positioned between the drain region and the source region. In rejecting claim 2, the examiner relied upon Kitagawa for the proposition that providing a split-drift region comprised of a super-junction portion and a

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RESURF portion would have been obvious, relying on the passage set forth in column 1, lines 51-55 and Fig. 4. In contrast to the examiner's understanding, Kitagawa also does not disclose or teach the RESURF region. Indeed, Kitagawa's element 7 is the drain region, not a RESURF region. Like AAPA, Kitagawa has no RESURF region formed between the super-junction region 12/13 and the drain region 7. As to the Kitagawa's passage set forth in column 1, lines 51-55, Kitagawa merely states that the prior art MOSFETs have a drift layer formed of a super-junction structure, namely alternating n-type and p-type layers 202, 203. Although Kitagawa mentions a "multi-resurf structure," it is unequivocally clear from Kitagawa's Figs. 1-3 also would not have taught any RESURF region formed between the super-junction region and the drain region.

The other applied references, namely Kawaguchi and Disney, also would not have alleviated the shortcomings of AAPA/Kitagawa.

Conclusion

Applicants submit that claims 1 and 3-12 patentably distinguish over the applied references and that the application is in condition for allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

ROSSI, KIMMS & McDOWELL LLP

22 AUGUST 2005
DATE


LYLE KIMMS
REG. NO. 34,079 (RULE 34, WHERE APPLICABLE)

P.O. Box 826
ASHBURN, VA 20146-0826
703-726-6020 (PHONE)
703-726-6024 (FAX)